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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,187	06/20/2001	Hikaru Sakamoto	010497	2959
23850	7590	04/27/2004	EXAMINER	
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP 1725 K STREET, NW SUITE 1000 WASHINGTON, DC 20006			RUTHKOSKY, MARK	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 04/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

Office Action Summary	Application No.	Applicant(s)	
	09/857,187	SAKAMOTO ET AL.	
	Examiner	Art Unit	
	Mark Ruthkosky	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/10/04
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7 is/are rejected.
- 7) ☒ Claim(s) 5, 6 and 8-13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The rejection of claims 2-13 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been overcome by the applicant's amendment.

Claim Objections

The objection to claims 1-13, because the claims use the language "characterized in that" to define the claim limitations, has been overcome by the applicant's amendment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 7 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroshi (JP 03-263,756), and further in view of Rossoll (US 5,336,273.)

The instant claims are to a process for producing a lead-acid battery comprising the step of welding together a lead bushing integrally cast in a lid of an assembled lead-acid battery and a pole inserted through the lead bushing by laser welding.

Hiroshi (JP 03-263,756) teaches a lead-acid battery with a lead bushing integrally cast in the lid of a lead-acid battery with a pole inserted through the lead bushing (abstract.) The bushing and pole are formed with a Pb-Ca alloy and are welded together. A tab terminal is mounted on the bushing. The pole is provided with a projection at the center of the upper surface (figure.) The reference does not teach the welding to be laser welding.

Rossoll (US 5,336,273) teaches the sealing of a battery by laser welding wherein a terminal is laser welded to a battery frame. The welding is pulsed (in col. 8, lines 1-35.) It would be obvious to one of ordinary skill in the art at the time the invention was made to use a laser welding technique to weld a lead bushing integrally cast in the lid with a pole inserted through the lead bushing of the lead-acid battery of Hiroshi as laser welding is well known in the art to form a secure weld between the components as taught by Rossoll. Laser welding is known to weld at sufficiently low temperatures so as to not cause damage to the cell components (col. 3, lines 1-20; col. 8, lines 5-55.) The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

Allowable Subject Matter

Claims 5, 6, and 8-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The instant claims are to a process for producing a lead-acid battery comprising a lead bushing integrally cast in a lid of an assembled lead-acid battery and a pole inserted through the

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lead bushing are welded together by laser welding. Claims 5 and 6 are to a process where the welding is performed by a laser beam of low output followed by a beam of high output. Claim 8 is to a process wherein a lap density of beads in the laser welding of the pulsed type is in the range of 6-12 points per mm. Claims 9-13 are to a process wherein terminal portions are surrounded by a lower cylindrical end portion of a cylindrical shield, and fumes generated by welding are sucked through an exhaust port in the shield. The prior art does not include teachings of these features in a process for producing a lead-acid battery comprising a lead bushing integrally cast in a lid of the battery and a pole inserted through the lead bushing wherein the bushing and pole are welded together by laser welding.

Response to Arguments

Applicant's arguments filed 2/10/2004 have been fully considered but they are not persuasive. The applicant argues that Rossoll should not be combined with Hiroshi because Rossoll is not directed to a lead acid battery, but to a cell terminal laser welded to a ceramic frame. Further, the applicant states that the references do not teach the "tab terminal member fitly mounted on the lead bushing" being welded to the lead bushing by laser welding.

With regard to the applicant's arguments that the combination of references is improper, the examiner disagrees. Hiroshi (JP 03-263,756) teaches a lead-acid battery with a lead bushing integrally cast in the lid of a lead-acid battery with a pole inserted through the lead bushing, such that the bushing and pole are welded together. The method of laser welding is well known in the art as taught in Rossoll for joining two components of a battery. One of ordinary skill in the art would recognize from these teachings that laser welding will join and secure two components of a lead acid battery. As welding of the components is taught Hiroshi, one of ordinary skill in the

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art would recognize that laser welding provides an equivalent means to weld and secure the components welded in the lead acid battery of Hiroshi.

With regard to the applicant's arguments that the references do not teach the tab terminal member fitly mounted on the lead bushing being welded to the lead bushing by laser welding, the examiner disagrees. The electrode pole is welded to the cup section of the terminal busing section. Further, the electrode pole is welded to the lower section of the welding section. From these two welds, the pole is secured to the bushing section (3b) and the terminal cup (3c), which is the equivalent of a tab terminal member fitly mounted on the lead bushing. The reference does not teach laser welding the components, however, the Rossoll reference is cited for joining two components of a battery by laser welding.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mark Ruthkosky
Primary Patent Examiner
Art Unit 1745

Mark Ruthkosky
4/21/04